



## Chemical compositions of essential oils from Bakhtiari savory (*Satureja bachtiarica* Bunge.) under different extraction methods

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**Background and objectives:** Bakhtiari savory belonging to the Lamiaceae family is an endemic species, which is rich in carvacrol, thymol and other aromatic compounds. The essential oil of the plant could be added in fatty food against radicals similar to synthetic antioxidant BHT. **Methods:** To determine the best extraction methods on qualitative and antioxidant characteristics of the essential oil, Bakhtiari savory was extracted by eight different methods in two models. Conventional hydrodistillation methods using Clevenger-type apparatus, and steam and water distillation, and innovative techniques, steam distillation, microwave-assisted hydro diffusion with power 400 and 800 watt, microwave-assisted hydro diffusion and steam with power 400 and 800 watt, were used to extract the essential oil from the aerial parts of savory and their results were compared. For comparison, the essential oils of all samples were analyzed using DPPH and Folin-Ciocalteu reagents. **Results:** Significant differences occurred among antioxidant activity and total phenolics content in different extraction methods. High antioxidant activity and total phenolics content were observed in microwave-assisted hydro diffusion and steam of 800 watt. This technique was the best extraction methods of the *S. bachtiarica* essential oil. **Conclusion:** The microwave-assisted extraction was the best extraction methods with protecting high antioxidant activity of the oil. The method is “green technology” in term of excellent quality of essential oil and is a proper tool for the extraction of essential oil from medicinal plants and aromatic herbs.

**Keywords:** antioxidant, DPPH, essential oil, extraction, *Satureja*